CLAIMS

1.   A method of steganographic encoding including the steps of:

    (A)   providing primary data containing a plurality of addressable first data elements;

    (B)   providing secondary data containing a plurality of second data elements; and

    (C)   for each second data element:

        (C1)   searching for a first data element which matches content of the second data element, and

        (C2)   generating a key element including the address of the matching first data element when a match is found for the content of the second data element.

2.   A method of steganographic encoding as defined in claim 1 wherein the first and second data elements are represented by integer values and wherein step (C) further includes:

    when a match is not found for the content of a second data element;

        (C3)   producing an adjusted second data element by incrementing or decrementing the integer value of the second data element,

        (C4)   searching for a first data element which matches the integer value of the adjusted second data element, and

        (C5)   generating a key element including the address of the matching first data element when a match is found for the adjusted second data element, and replacing the content of the matching first data element with the integer value of the second data element prior to producing the adjusted second data element.

3.   A method of steganographic encoding as defined in claim 2 wherein step (C) further includes:

    when a match is not found for the content of the adjusted second

data element;

(C6) producing a new adjusted second data element by incrementing or decrementing the adjusted second data element and repeating steps (C4) and (C5) for the new adjusted second data element.

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4.   A method of steganographic encoding as defined in claim 1 wherein, prior to step (C) the method includes:

determining a range for the contents of the first data elements,

determining a range for the contents of the second data elements,

10   comparing the range for the first data elements with the range for the second data elements,

shifting the contents of the second data elements when the range for the second data elements falls outside of the range for the first data elements, such that the range for the second data elements falls substantially within the range for

15   the first data elements, and

using the shifted second data elements as the second data elements in step (C).

5.   A method of steganographic encoding as defined in claim 4 wherein the

20   step of determining a range for the contents of the first data elements includes:

calculating a mean and standard deviation for the first data elements; and

determining a lower limit for the first data elements based on the mean and standard deviation.

25   6.   A method of steganographic encoding as defined in claim 4 wherein the step of determining a range for the contents of the second data elements includes:

establishing as a reference a minimum value which can be attributed to the range of possible second data elements.

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7.   A method of steganographic encoding as defined in claim 6 wherein the

step of comparing includes calculating an offset value by subtracting the reference value from the lower limit.

8.   A method of steganographic encoding as defined in claim 7 wherein the step of shifting includes adding the offset value to the contents of each second data element.

9.   A method of steganographic encoding as defined in claim 1, further including storing the key elements.

10.   A method of steganographic encoding as defined in claim 7 further including storing the offset value with the key elements.

11.   A method of steganographic encoding as defined in claim 1 wherein:

step (A) includes providing a digital representation of the content of each first data element,

step (B) includes providing a digital representation of the content of each second data element, and

step (C1) includes comparing values of the digital representations of the first and second data elements.

12.   A method of steganographic encoding as defined in claim 1 wherein the secondary data includes a text message and each second data element includes an alphanumeric character.

13.   A method of steganographic encoding as defined in claim 12 wherein the text message includes one or more of the following:

a title,

an artist,

a copyright holder,

a body to which royalties should be paid, and

general terms for publisher distribution.

14.   A method of steganographic encoding as defined in claim 2 further including storing the primary data or modified primary data produced by step (C5).

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15.   A method of steganographic encoding as defined in claim 1 wherein the primary data includes first data elements arranged in a two-dimensional array wherein each first data element defines a characteristic associated with a still image element.

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16.   A method of steganographic encoding as defined in claim 15 wherein the first data elements are obtained from a stream of data representing a digitised still image.

15   17.   A method of steganographic encoding as defined in claim 16 wherein the digitised still image is obtained from a still digital camera.

18.   A method of steganographic encoding as defined in claim 16 wherein the digitised still image is obtained from a computer game or other software.

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19.   A method of steganographic encoding as defined in claim 1 wherein the primary data includes first data elements arranged in a three-dimensional array wherein each first data element defines a characteristic associated with a motion video element.

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20.   A method of steganographic encoding as defined in claim 19 wherein the first data elements are obtained from a stream of data representing digitised motion video.

30   21.   A method of steganographic encoding as defined in claim 20 wherein the digitised video is obtained from a Video Compact Disc player.

22.   A method of steganographic encoding as defined in claim 20 wherein the digitised video is obtained from a Laser Disc player.

23.   A method of steganographic encoding as defined in claim 20 wherein the digitised video is obtained from a digitised movie contained within a computer game or other software.

24.   A method of steganographic encoding as defined in claim 20 wherein the digitised video is obtained from a Digital Versatile Disc player.

25.   A method of steganographic encoding as defined in claim 1 wherein the primary data includes first data elements arranged in a one-dimensional array wherein each first data element defines a characteristic associated with a digital audio sample.

26.   A method of steganographic encoding as defined in claim 25 wherein the digital audio samples are obtained from a stream of data representing digitised sound or music.

27.   A method of steganographic encoding as defined in claim 25 wherein the digital audio samples are obtained from two streams of data representing two channels of digitised sound for stereo reproduction.

28.   A method of steganographic encoding as defined in claim 25 wherein the digitised sound or music is obtained from a Compact Disc player.

29.   A method of steganographic encoding as defined in claim 25 wherein the digitised sound or music is obtained from a Digital Audio Tape player.

30.   A method of steganographic encoding as defined in claim 25 wherein the

digitised sound or music is obtained from a Laser Disc player.

31.   A method of steganographic encoding as defined in claim 25 wherein the digitised sound or music is obtained from a Video Compact Disc player.

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32.   A method of steganographic encoding as defined in claim 1 wherein the number of first data elements is greater than the number of second data elements.

10   33.   A method of steganographic encoding as defined in claim 1 wherein the address of each first data element is used only once for generating the key elements, whereby second data elements having equal contents are matched to first data elements having different addresses.

15   34.   A method of steganographic decoding of secondary data including a plurality of second data elements, said secondary data being encoded in key elements in association with primary data, said method including the steps of:

    (A)   providing said primary data containing a plurality of addressable first data elements;

20   (B)   providing said key elements, each key element including an address of a first data element; and

    (C)   for each key element, generating a said second data element by extracting the content of the addressed first data element.

25   35.   A method of steganographic decoding as defined in claim 34 wherein the contents of the second data elements are shifted by an offset value further including:

    (D)   providing said offset value, and

    (E)   subtracting the offset value from the contents of the second data

30   elements.

36.   A method of steganographic decoding as defined in claim 34 wherein each second data element includes an alphanumeric character.

37.   An apparatus for steganographic encoding including:

5   (A)   means for providing primary data containing a plurality of addressable first data elements;

(B)   means for providing secondary data containing a plurality of second data elements;

(C)   means for searching, for each second data element, a first data

10   element which matches content of the second data element, and

(D)   means for generating a key element including the address of the matching first data element when a match is found for the content of the second data element.

15   38.   An apparatus for steganographic encoding as defined in claim 37 wherein the first and second data elements are represented by integer values, said apparatus further including:

(E)   means for producing an adjusted second data element by incrementing or decrementing the integer value of the second data element when

20   a match is not found for the content of a secondary data element,

(F)   means for searching for a first data element which matches the integer value of the adjusted second data element,

(G)   means for generating a key element including the address of the matching first data element when a match is found for the adjusted second data

25   element, and

(H)   means for replacing the content of the matching first data element with the integer value of the second data element prior to producing the adjusted second data element.

30   39.   An apparatus for steganographic encoding as defined in claim 37 further including, means for producing a new adjusted data element by incrementing or

decrementing the adjusted second data element when a match is not found for the adjusted second data element.

40.   An apparatus for steganographic encoding as defined in claim 37 further
5   including:

means for determining a range for the contents of the first data elements,

means for determining a range for the contents of the second data elements,

means for comparing the range for the first data elements with the range
10   for the second data elements,

means for shifting the contents of the second data elements when the range for the second data elements falls outside of the range for the first data elements, such that the range for the second data elements falls substantially within the range for the first data elements, and

15   means for using the shifted second data elements as the second data elements.

41.   An apparatus for steganographic decoding of secondary data including a plurality of second data elements, said secondary data being encoded in key
20   elements in association with primary data, said apparatus including:

(A)   means for providing said primary data containing a plurality of addressable first data elements;

(B)   means for providing said key elements, each key element including an address of a first data element; and

25   (C)   means for generating a second data element for each key element by extracting the content of the addressed first data element.

42.   A method of cryptographic encoding including the steps of:

(A)   providing primary data containing a plurality of addressable first data
30   elements;

(B)   providing secondary data containing a plurality of second data

elements; and

    (C)   for each second data element:

        (C1)   searching for a first data element which matches content of the second data element, and

        (C2)   generating a key element including the address of the matching first data element when a match is found for the content of the second data element.

43.   A method of cryptographic decoding of secondary data including a plurality of second data elements, said secondary data being encoded in key elements in association with primary data, said method including the steps of:

    (A)   providing said primary data containing a plurality of addressable first data elements;

    (B)   providing said key elements, each key element including an address of a first data element; and

    (C)   for each key element, generating a second data element by extracting the content of the addressed first data element.

44.   An apparatus for cryptographic encoding including:

    (A)   means for providing primary data containing a plurality of addressable first data elements;

    (B)   means for providing secondary data containing a plurality of second data elements;

    (C)   means for searching for each second data element a first data element which matches content of the second data element, and

    (D)   means for generating a key element including the address of the matching first data element when a match is found for the content of the second data element.

45.   An apparatus for cryptographic decoding of secondary data including a plurality of second data elements, said secondary data being encoded in key

elements in association with primary data, said apparatus including:

(A)   means for providing said primary data containing a plurality of addressable first data elements;

(B)   means for providing said key elements, each key element including an address of a first data element; and

(C)   means for generating a second data element for each key element by extracting the content of the addressed first data element.